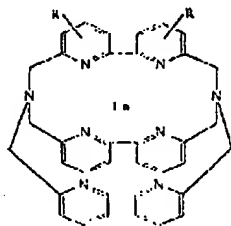
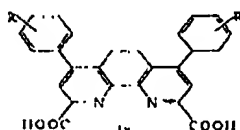


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3. **(Previously presented)** An encapsulation vesicle as recited in claim 1, wherein said matrix comprises silica and synthetic polymer.
4. **(Currently amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent ~~donor~~ molecule is an organo-metallic complex, and wherein the matrix surface is modified with carboxyl groups so that the organo-metallic complex can be covalently attached to the matrix surface.
5. **(Currently amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent ~~donor~~ molecule is an organo-metallic complex, and wherein the matrix surface is modified with amino groups so that the organo-metallic complex can be covalently attached to the matrix surface.
6. **(Canceled)**
7. **(Canceled)**
8. **(Currently amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent ~~donor~~ molecule is an organo-metallic complex.
9. **(Canceled)**
10. **(Previously presented)** An encapsulation vesicle as recited in claim 8, wherein said organo-metallic complex is a ruthenium tris diphenyl phenanthroline complex.
11. **(Previously presented)** An encapsulation vesicle as recited in claim 8, wherein said organo-metallic complex has an emission maximum at about 650 nm.
12. **(Canc led)**

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13. **(Previously Presented)** An encapsulation vesicle as recited in claim 8, wherein said fluorescent donor molecule is selected from the group consisting of:



where Ln is selected from the group consisting of Eu, Tb, Sm, and Dy; and R represents H or a functionality capable of covalently linking to the surface of said matrix.

14. **(Currently amended)** An encapsulation vesicle as recited in claim 8, wherein said fluorescent donor molecule has a fluorescence lifetime greater than 100 nanoseconds and is susceptible to collisional quenching by oxygen.
15. **(Previously presented)** An encapsulation vesicle as recited in claim 2, wherein said protection layer comprises a material that is translucent to said fluorescence.
16. **(Previously presented)** An encapsulation vesicle as recited in claim 2, wherein said protection layer comprises a material that is transparent to said fluorescence.
17. **(Previously presented)** An encapsulation vesicle as recited in claim 2,

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wherein said protection layer comprises a sol-gel material.

18. **(Original)** An encapsulation vesicle as recited in claim 2, wherein said protection layer is modified with hydrophilic functionalities selected from the group consisting of hydroxyl, carboxyl and protonated amines.
19. **(Original)** An encapsulation vesicle as recited in claim 2 that was formed by suspension polymerization.
20. **(Currently amended)** An encapsulation vesicle as recited in claim 37, wherein said ligand comprises an acceptor molecule that is capable of absorbing fluorescence that has been emitted from said fluorescent donor molecule.
21. **(Previously presented)** An encapsulation vesicle as recited in claim 1 for use in a fluorescence energy transfer immunoassay.
22. **(Canceled)**
23. **(Currently amended)** An encapsulation vesicle as recited in claim 20, wherein an absorption band of said acceptor molecule overlaps with an emission band of said fluorescent donor molecule.
24. **(Previously presented)** An encapsulation vesicle as recited in claim 20, wherein said acceptor molecule is selected from the group consisting of fluorescein, Cy5 and allophycocyanin.
25. **(Previously presented)** An encapsulation vesicle as recited in claim 37, wherein said ligand is an antibody.
26. **(Previously presented)** An encapsulation vesicle as recited in claim 21, wherein said fluorescence energy transfer immunoassay is a sandwich assay.

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27. **(Previously presented)** An encapsulation vesicle as recited in claim 37, wherein said ligand is selected from the group consisting of proteins, DNA, RNA, polypeptides, aptamers and receptor molecules.
28. **(Canceled)**
29. **(Canceled)**
30. **(Canceled)**
31. **(Canceled)**
32. **(Previously presented)** An encapsulation vesicle as recited in claim 21, wherein said fluorescence energy transfer immunoassay is a competitive binding assay.
33. **(Previously presented)** An encapsulation vesicle as recited in claim 1 for use in a DNA or RNA fluorescence energy transfer hybridization assay.
34. **(Previously presented)** An encapsulation vesicle as recited in claim 1 for use in a fluorescence energy transfer binding assay between a ligand and a receptor.
35. **(Previously presented)** An encapsulation vesicle as recited in claim 34 for use in a fluorescence energy transfer binding assay between an aptamer and a protein.
36. **(Currently Amended)** An encapsulation vesicle as recited in claim 1, wherein said fluorescent ~~donor~~ molecule is selected from the group consisting of cyanines, oxazines, thiazines, porphyrins, phthalocyanines, fluorescent infrared-emitting polynuclear aromatic hydrocarbons, phycobiliproteins,

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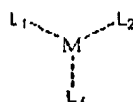
squaraines and organo-metallic complexes.

37. **(Previously presented)** An encapsulation vesicle as recited in claim 1 further comprising a ligand attached to said protection layer.
38. **(Previously presented)** An encapsulation vesicle as recited in claim 37, wherein said ligand is an antigen.
39. **(Previously presented)** An encapsulation vesicle as recited in claim 2, wherein said protection layer comprises silica and synthetic polymer.
40. **(Previously presented)** An encapsulation vesicle as recited in claim 20, wherein said acceptor molecule is selected from the group consisting of Fast green and Light green SF yellowish.
41. **(Previously presented)** An encapsulation vesicle as recited in claim 20, wherein said acceptor molecule is selected from the group consisting of cyanines, oxazines, thiazines, porphyrins, phthalocyanines, fluorescent infrared-emitting polynuclear aromatic hydrocarbons, phycobiliproteins, squaraines, organo-metallic complexes, and azo dyes.
42. **(Currently amended)** An encapsulation vesicle as recited in claim 1 further comprising an acceptor molecule attached to said protection layer, wherein said acceptor molecule is capable of absorbing fluorescence that has been emitted from said fluorescent donor molecule.
43. **(Previously presented)** An encapsulation vesicle as recited in claim 42, wherein said acceptor molecule is selected from the group consisting of Fast green and Light green SF yellowish.
44. **(Previously present d)** An encapsulation vesicle as recited in claim 42, wherein said acceptor molecule is selected from the group consisting of

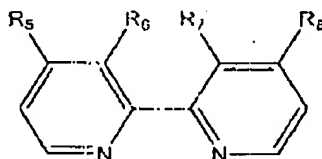
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fluorescein, Cy5 and allophycocyanin.

45. **(Previously presented)** An encapsulation vesicle as recited in claim 42, wherein said acceptor molecule is selected from the group consisting of cyanines, oxazines, thiazines, porphyrins, phthalocyanines, fluorescent infrared-emitting polynuclear aromatic hydrocarbons, phycobiliproteins, squaraines, organo-metallic complexes, and azo dyes.
46. **(Currently amended)** An encapsulation vesicle as recited in claim 42, wherein an absorption band of said acceptor molecule overlaps with an emission band of said fluorescent ~~donor~~ molecule.
47. **(Currently amended)** An encapsulation vesicle as recited in claim 1, wherein said ~~fluorescence~~ fluorescent molecule is susceptible to collisional quenching by oxygen and said protection layer reduces the diffusion of oxygen into said surface coating.
48. **(Currently Amended)** An encapsulation vesicle as recited in claim 8, wherein said fluorescent ~~donor~~ molecule is:

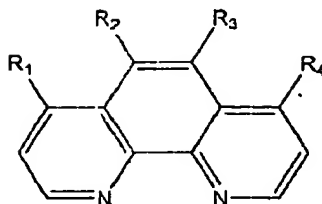


where M is selected from the group consisting of Ru, Os and Re; and L₁-L₃ are each independently selected from the group consisting of:



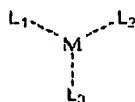
and

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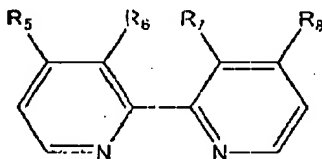
where R₁-R₄ are each independently selected from the group consisting of H, alkyl and aryl.

49. **(Currently Amended)** An encapsulation vesicle as recited in claim 8, wherein said fluorescent donor molecule is:

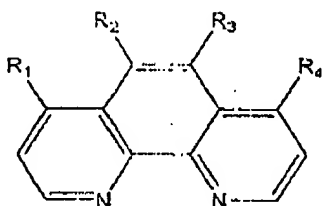


where M is Os;

L₁ is:

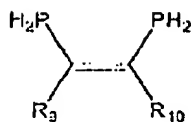


; or

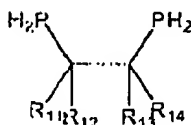


; and L₂ and L₃ are independently selected from the group consisting of:

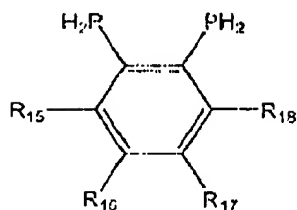
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;



; and



where R_1 - R_{18} are each independently selected from the group consisting of H, alkyl, and aryl.